

## Records of Two Introduced Rodents, *Mus musculus* and *Rattus rattus*, from Bushland in Elsey National Park

A. D. GRIFFITHS

*Parks and Wildlife Commission of the Northern Territory,*

*PO Box 496 Palmerston, NT 0831*

*Present address: CSIRO Wildlife and Ecology,*

*PMB 44 Winnellie, NT 0822*

---

Across much of southern and central Australia, feral Rabbits *Oryctolagus cuniculatus*, House Mice *Mus musculus* and Black Rats *Rattus rattus* are often the most numerous small mammals, even in relatively undisturbed habitats. In northern Australia generally, and the Top End in particular, there are few records of feral small mammals occurring outside the restricted areas of urban development (Fig. 1). For example, no feral small mammals were recorded from a series of wildlife surveys (> 200,000 trap-nights) during 1992-1995 in native vegetation across the Top End (Woinarski in press). Yet a recent comprehensive fauna survey of Elsey National Park (14° 55' S, 133° 10' E; mean annual rainfall = 750 mm), 100 km south of Katherine (Fig. 1), revealed both the House Mouse and Black Rat in apparently unmodified native vegetation. This paper provides details of these records.

Elsey National Park was surveyed during December 1996, using Elliott and cage traps within each of 31 x 1 ha quadrats, located in a range of representative vegetation types (total of 2,325 trap-nights). Three Black Rats were trapped from three quadrats, and a fourth was trapped incidentally in a storage shed at the main campground (12 Mile). Vegetation at two of the quadrats consisted of tall *Melaleuca* forest adjacent to permanent spring-fed water courses, while the third was open woodland and situated more than 2 km from permanent water (Appendix 1). Four House Mice were captured at two quadrats, both dominated by *Melaleuca cajuputi* with an understorey dominated by the sedge *Scleria brownii* (Appendix 1). Permanent water was available in the first quadrat, but not the second (although water would be freely available during wet-season months). The distance between the capture sites and the closest human habitation was up to 10 km and 13 km for the Black Rat and House Mouse, respectively.

---

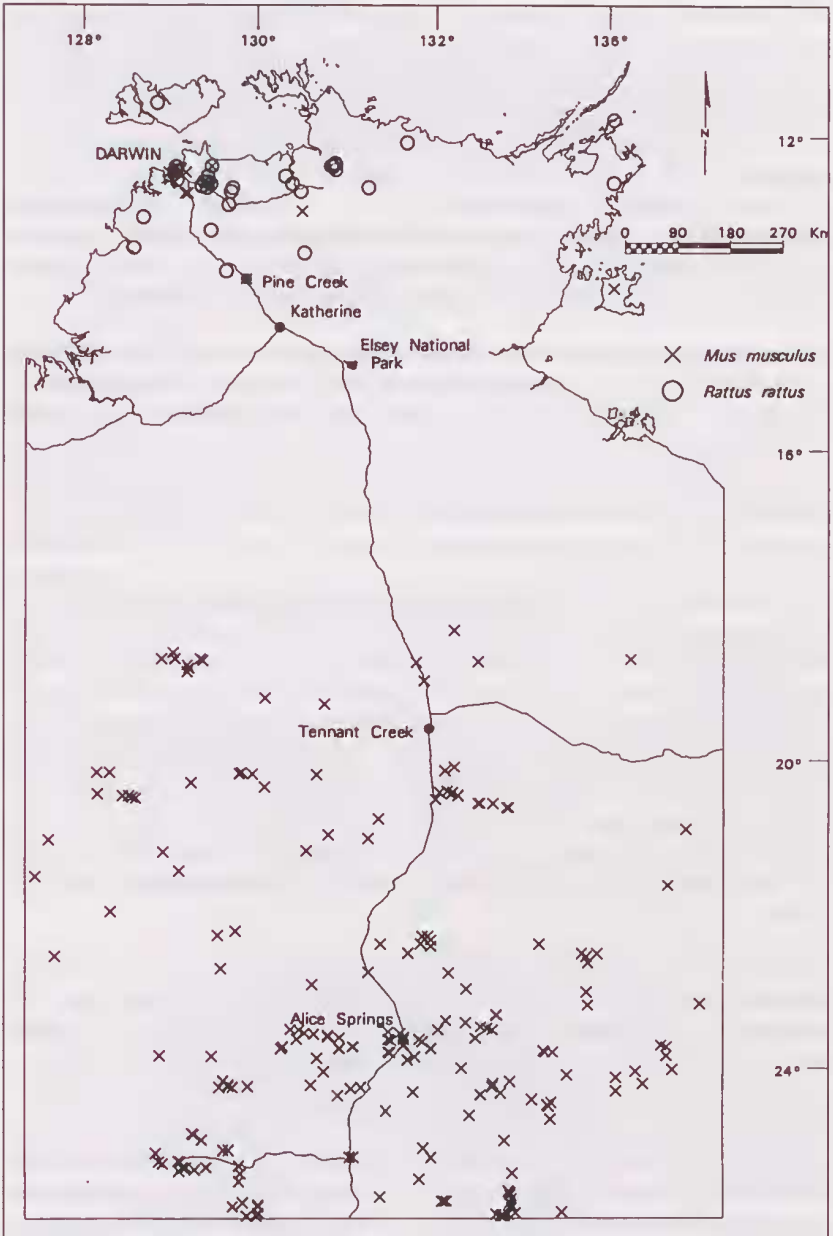


FIGURE 1 Location of historical records of *Rattus rattus* and *Mus musculus* in the Northern Territory, and location of Elsey National Park.

The Black Rat records represent a substantial extension of the previous southernmost record for this species in the Northern Territory (latitude 13° 43' S). The House Mouse has a widespread distribution south of latitude 18° S, but north of this latitude there is a 400 km distribution gap until 14° S (Fig.1). The records above 14° S are relatively few ( $n = 21$ ), and always associated with towns. Many of the previous records for both the Black Rat and the House Mouse are from towns (e.g. Darwin), with the remainder situated close to human settlements in the north-west of the Top End. However, there is a substantial Black Rat population on the little modified Truant Island off the north-east coast (J. Woinarski, unpubl. data).

Do the Elsey National Park records represent a slow expansion in the distribution of these two introduced mammal species in northern Australia? Disturbance of natural environments generally favours introduced vertebrate species. Possibly the region's long history of grazing and use as a major stock route has disturbed the environment sufficiently for colonisation by these two rodents. At present, a large population of feral donkeys inhabit most areas of the Park, but particularly the riparian forests.

The contrast in the distribution of House Mice between the southern and northern regions of the Northern Territory is puzzling, and may offer some insights. Central Australian populations of the species persist in undisturbed habitats, and even mirror irruptive patterns of native rodents (Newsome & Corbett 1975). Their limited distribution in the wet-dry tropics suggests that high rainfall creates an unsuitable environment for the House Mouse. Elsey National Park is located between the wet-dry tropical and semi-arid zones, and may be sufficiently arid for them to persist away from human settlement. In addition these findings clearly illustrate that the distribution of House Mice is not continental, as suggested by Singleton (1995).

The reverse may be true for the Black Rat to persist away from human settlement in northern Australia. It is restricted to higher rainfall areas in southern and eastern Australia (Watts 1995), and in the wet-dry tropics is restricted to human settlements in areas with rainfall exceeding 1,000 mm per year. At Elsey National Park, Black Rats were mainly confined to riparian habitats, although the capture in open woodland suggests that they are capable of invading what was previously thought to be unsuitable habitat, and of substantial dispersal from towns. Further trapping in the area is desirable to establish the extent of distribution of these species within the Park, and to monitor their occurrence in the transition zone between semi-arid and tropical northern Australia.

---

## Acknowledgements

I would like to thank Parks and Wildlife staff Kathy Wilson, Chris Materne, Damian Milne and John Scott, and volunteers Judy Manning, Marisa Fontes and Jack Hare for assistance with trapping. Damian Milne prepared the map and John Woinarski provided comments on an earlier draft.

## References

- Newsome, A.E. & Corbett, L.K. (1975) Outbreaks of rodents in semi-arid and arid Australia: causes, preventions and evolutionary considerations. In: *Rodents in Desert Environments* (eds I. Prakash & P.K. Ghosh) pp. 117–153. Junk, The Hague.
- Singleton, G.R. (1995) House Mouse *Mus musculus*. In: *The Mammals of Australia*. (ed R. Strahan) pp. 646–647. Reed Books, Sydney.
- Watts, C.H.S. (1995) Black Rat *Rattus rattus*. In: *The Mammals of Australia* (ed R. Strahan) pp. 659–600. Reed Books, Sydney.
- Woinarski, J.C.Z. (in press) Status of rodents in the Top End of the Northern Territory. Proceedings of Australian Mammal Society Rodent Symposium, Melbourne, 1996.

**APPENDIX 1** Summary of quadrats where individual Black Rats and House Mice were captured in Elsey National Park, Northern Territory.

Species	Location	Dominant plants*	Habitat and location	Distance (km) from human settlement
<i>R. rattus</i>	14° 56' 20" S 133° 08' 10" E	<i>M. dealbata</i> <i>Li. rigida</i> <i>P. aquaticus</i>	Tall riparian forest at junction of Water House R and Little Roper Ck	1
<i>R. rattus</i>	14° 56' 30" S 133° 08' 45" E	<i>M. dealbata</i> <i>Li. rigida</i> <i>F. racemosa</i>	Tall riparian forest close to Little Roper Ck	2
<i>R. rattus</i>	15° 01' 40" S 133° 12' 01" E	<i>G. americanus</i> <i>E. chlorostachys</i> <i>Ly. cunninghamii</i>	Eucalypt open woodland on Roper Hwy	10
<i>R. rattus</i>	14° 57' 14" S 133° 13' 13" E	Not applicable	Storage shed at 12 Mile camp-ground	0
<i>M. musculus</i>	14° 54' 59" S 133° 05' 59" E	<i>M. cajuputi</i> <i>Lo. grandiflorus</i> <i>S. brownii</i>	Tall riparian forest with sedge understorey downstream of Bitter Springs on Little Roper Ck	1
<i>M. musculus</i>	14° 58' 45" S 133° 11' 58" E	<i>M. cajuputi</i> <i>P. spiralis</i> <i>S. brownii</i>	Low woodland in drainage depression in 'Jungle Paddock'	13

\* Letters for genera: *M*, Melaleuca; *Li*, Livistona; *P*, Pandanus; *F*, Ficus; *G*, Gyrocarpus; *E*, Erythrophleum; *Ly*, Lysiphylum; *Lo*, Lophostemon; *S*, Scleria.